IN THE CLAIMS

1-27. (canceled)

28. (original) A system comprising:

a receiver that receives data, wherein the received data comprises normally ordered first data and reordered second data, wherein the normally ordered first data results from inner and outer coding of first input data and two interleaving operations, and wherein the reordered second data results from inner coding of second input data and one interleaving operation;

an inner decoder that inner decodes the received data to recover the normally ordered first data and the reordered second data;

a data discarder downstream of the inner decoder that discards the reordered second data; and,

an outer decoder downstream of the data discarder that outer decodes the normally ordered first data.

29. (original) The system of claim 28 wherein the normally ordered first data comprises normally ordered robust VSB data, wherein the reordered second

data comprises reordered ATSC data, and wherein the data discarder discards the reordered ATSC data.

30. (original) The system of claim 29 wherein the data discarder discards the reordered ATSC data based upon a map indicating locations for the normally ordered robust VSB data and reordered ATSC data in a frame.

31. (original) The system of claim 28 wherein the normally ordered first data comprises normally ordered robust VSB data, wherein the reordered second data comprises reordered ATSC data, and wherein the data discarder discards the reordered ATSC data along with transport headers and Reed/Solomon parity data.

32. (original) The system of claim 31 wherein the data discarder discards the reordered ATSC data, transport headers, and Reed/Solomon parity data based upon a location indicating map.

33. (original) A method of processing received data comprising:

receiving data, wherein the received data comprises normally ordered first data and reordered

second data, wherein the normally ordered first data results from inner and outer coding of first input data and two interleaving operations, wherein the reordered second data results from inner coding of second input data and one interleaving operation;

inner decoding the received data to recover the normally ordered first data and the reordered second data; and,

discarding the recovered normally ordered first data.

34. (original) The method of claim 33 wherein the normally ordered first data comprises normally ordered robust VSB data, wherein the reordered second data comprises reordered ATSC data, and wherein the discarding of the normally ordered first data comprises discarding the normally ordered robust VSB data.

35. (original) The method of claim 34 wherein the discarding of the normally ordered robust VSB data is based upon PID numbers.

36. (original) The method of claim 33 wherein the inner decoding of the received data includes

reordering the recovered normally ordered first data and the reordered second data in accordance with an interleave comprising the inverse of the one interleaving operation.

37. (original) A system comprising:

a receiver that receives data, wherein the received data comprises normally ordered first data and reordered second data, wherein the normally ordered first data results from two interleaving operations, and wherein the reordered second data results from one interleaving operation;

a decoder that decodes the received data to recover the normally ordered first data and the reordered second data; and,

a data discarder downstream of the decoder that discards the recovered reordered second data.

38. (original) The system of claim 37 wherein the normally ordered first data comprises normally ordered VSB data, wherein the reordered second data comprises reordered ATSC data, and wherein the data discarder discards the reordered ATSC data.

39. (original) The system of claim 38 wherein the data discarder discards the reordered ATSC data based upon a map indicating locations for the normally ordered VSB data and reordered ATSC data in a frame.

40. (original) The system of claim 37 wherein the normally ordered first data comprises normally ordered VSB data, wherein the reordered second data comprises reordered ATSC data, and wherein the data discarder discards the reordered ATSC data along with transport headers and Reed/Solomon parity data.

41. (original) The system of claim 40 wherein the data discarder discards the reordered ATSC data, transport headers, and Reed/Solomon parity data based upon a location indicating map.

42. (original) A method of processing received data comprising:

receiving data, wherein the received data comprises normally ordered first data and reordered second data, wherein the normally ordered first data results from inner and outer coding of first input data and two interleaving operations, wherein the reordered

second data results from inner coding of second input data and one interleaving operation;

decoding the received data to recover the normally ordered first data and the reordered second data; and,

upon a user selection, either reordering the recovered normally ordered first data and reordered second data and subsequently discarding the reordered normally ordered first data or discarding the recovered reordered second data and subsequently reordering the recovered normally ordered first data.

43. (original) The method of claim 42 wherein the recovered normally ordered first data are discarded based upon PID numbers, and wherein the reordered second data are discarded based upon a map.

44. (original) A receiver supplying method comprising:

supplying first receivers, wherein each of the first receivers processes received robust N level VSB data and discards N level ATSC data; and,

supplying second receivers, wherein each of the second receivers processes received N level ATSC data and discards robust N level VSB data.

45. (original) The receiver supplying method of claim 44 wherein each of the first receivers discards the received N level ATSC data based upon a map, and wherein each of the second receiver discards the received robust N level VSB data based upon PID numbers.

46. (original) The receiver supplying method of claim 44 further comprising supplying third receivers, wherein each of the third receivers selectively processes both the received robust N level VSB data and N level ATSC data and selectively discards the one of the received robust N level VSB data and N level ATSC data not processed.

47. (original) The receiver supplying method of claim 46 wherein each of the first receivers discards the received N level ATSC data based upon a map, wherein each of the second receivers discards the received robust N level VSB data based upon PID numbers, and wherein each of the third receivers discards the received N level ATSC

data based upon the map and discards the received robust N level VSB data based upon the PID numbers.

48. (original) The receiver supplying method of claim 47 wherein N = 8.

49-53. (canceled)

54. (previously presented) An apparatus comprising:

a receiver that receives an electrical signal containing first and second 8 VSB data, wherein the first and second 8 VSB data correspond to different numbers of coded bits; and,

a data discarder that discards one of the first and second 8 VSB data.

55. (original) The apparatus of claim 54 wherein the first 8 VSB data comprises robust VSB data, and wherein the second 8 VSB data comprises ATSC data.

56. (previously presented) The apparatus of claim 54 wherein the received electrical signal contains a data frame comprising a plurality of ATSC data

segments, wherein the data frame contains the first and second 8 VSB data, wherein the data frame further contains third 8 VSB data, wherein the first, second, and third 8 VSB data correspond to different numbers of coded bits, wherein one complete Reed/Solomon block of the first 8 VSB data is packed into two complete ATSC data segments, wherein one complete Reed/Solomon block of the second 8 VSB data is packed into four complete ATSC data segments, and wherein three complete Reed/Solomon blocks of the third 8 VSB data are packed into four complete ATSC data segments.

57. (original) The apparatus of claim 56 wherein the first 8 VSB data result from 1/2 rate encoding, wherein the second 8 VSB data result from 1/4 rate encoding, and wherein the third 8 VSB data result from 3/4 rate encoding.

58. (previously presented) Apparatus comprising:

an input arranged to provide an ATSC frame containing a plurality of ATSC segments, wherein at least some of the ATSC segments comprise outer coded data packed into Reed/Solomon blocks each containing robust

VSB data and robust Reed/Solomon parity data between a non-outer coded ATSC transport header and non-outer coded ATSC Reed/Solomon parity data;

a decoder arrangement arranged to decode the outer coded data without regard to the ATSC Reed/Solomon parity data to produce first decoded data including the robust Reed/Solomon parity data; and,

a Reed/Solomon decoder arranged to decode the first decoded data in order to recover decoded robust VSB data.

59. (previously presented) The apparatus of claim 58 including a deinterleaver arranged to deinterleave the first decoded data and to provide the deinterleaved first decoded data to the Reed/Solomon decoder.

60. (previously presented) The apparatus of claim 59 wherein the deinterleaver ~~that~~ provides the deinterleaved first decoded data in a form such that one complete Reed/Solomon block is packed into M complete ATSC segments, and wherein M is an integer equal to 2 or 4.

61. (previously presented) The apparatus of claim 59 wherein the deinterleaver provides the deinterleaved first decoded data in a form such that the ATSC frame contains an integral number of the Reed/Solomon blocks.

62. (previously presented) Apparatus comprising:

an input to provide a received signal containing at least first and second data symbols having the same constellation, wherein the first and second data symbols correspond to different numbers of coded bits, wherein the first and second data symbols are intermixed in a data frame, wherein the data frame comprises a plurality of ATSC data segments, wherein one complete Reed/Solomon block of the first data symbols is packed into one complete ATSC data segment, and wherein one complete Reed/Solomon block of the second data symbols is packed into two complete ATSC data segments; and,

a decoder arranged to decode at least the second data symbols, wherein the decoder includes a first convolutional deinterleaver arranged to deinterleave the first and second data symbols, and wherein the decoder includes a second convolutional deinterleaver arranged to

deinterleave the second data symbols but not the first data symbols.

63. (previously presented) The apparatus of claim 62 wherein the constellation is an 8 VSB constellation.

64. (previously presented) The apparatus of claim 62 wherein the first data symbols comprise ATSC data symbols, and wherein the second data symbols comprise robust VSB data symbols.

65. (previously presented) The apparatus of claim 62 wherein the decoder is arranged to effectively perform decoding at a decoding rate of 2/3 times K/L, and wherein $K/L < 1$.

66. (previously presented) The apparatus of claim 65 wherein $K/L = 1/2$.

67. (previously presented) The apparatus of claim 62 wherein the first convolutional deinterleaver is characterized by deinterleave parameters B(1), M(1), and N(1), wherein the first convolutional deinterleaver comprises B(1) paths, wherein M(1) is a unit delay through a path of the first convolutional deinterleaver, wherein N(1) = M(1)B(1), wherein B(1) = 52, wherein M(1) = 4, wherein N(1) = 208, wherein the second convolutional deinterleaver is characterized by deinterleave parameters B(2), M(2), and N(2), wherein the second convolutional deinterleaver comprises B(2) paths, wherein M(2) is a unit delay through a path of the second convolutional deinterleaver, wherein N(2) = M(2)B(2), wherein B(2) = 46, wherein M(2) = 4, and wherein N(2) = 184.

68. (previously presented) The apparatus of claim 62 wherein the data frame includes a frame synch segment, and wherein the first and second convolutional deinterleavers are synchronized to the frame synch segment.

69-75. (canceled)

76. (previously presented) The apparatus of claim 59 wherein the deinterleaver is characterized by deinterleave parameters B, M and N, wherein the deinterleaver comprises B paths, wherein M is a unit delay through a path, wherein N = MB, wherein M = 4, B = 46, and N = 184.

77. (previously presented) The apparatus of claim 58 wherein the decoder arrangement is arranged to effectively perform decoding at a decoding rate of 2/3 times K/L, and wherein K/L < 1.

78. (previously presented) The apparatus of claim 77 wherein K/L = 1/2.

79. (previously presented) The apparatus of claim 77 wherein K/L = 1/4.

80. (previously presented) The apparatus of claim 58 wherein the decoder arrangement is arranged to effectively perform decoding at decoding rates of 2/3 times K/L and of 2/3 times P/Q, wherein K/L ≠ P/Q, wherein K/L < 1, and wherein P/Q < 1.

81. (previously presented) The apparatus of claim 80 wherein K/L = 1/2, and wherein P/Q = 1/4.

82-91. (canceled)

92. (previously presented) The apparatus of claim 62 wherein the received signal further contains third data symbols having the same constellation as the first and second data symbols, wherein the third data symbols correspond to a number of coded bits different than the numbers of coded bits corresponding to the first and second data symbols, wherein the third data symbols are intermixed with the first and second data symbols in the data frame, wherein one complete Reed/Solomon block of the third data symbols is packed into four complete ATSC data segments, wherein the decoder is arranged to also decode the third data symbols, wherein the first convolutional deinterleaver is arranged to also deinterleave the third data symbols, and wherein the second convolutional deinterleaver is arranged to also deinterleave the third data symbols.

93. (previously presented) The apparatus of claim 92 wherein the first data symbols comprise ATSC data symbols, wherein the second data symbols comprise first robust VSB data symbols, and wherein the third data symbols comprises second robust VSB data.

94. (previously presented) The apparatus of claim 92 wherein the decoder is arranged to effectively perform decoding at decoding rates of 2/3 times K/L and of 2/3 times P/Q, wherein $K/L \neq P/Q$, wherein $K/L < 1$, and wherein $P/Q < 1$.

95. (previously presented) The apparatus of claim 94 wherein $K/L = 1/2$, and wherein $P/Q = 1/4$.

96-99. (canceled)